PULP & PAPER

July 1988

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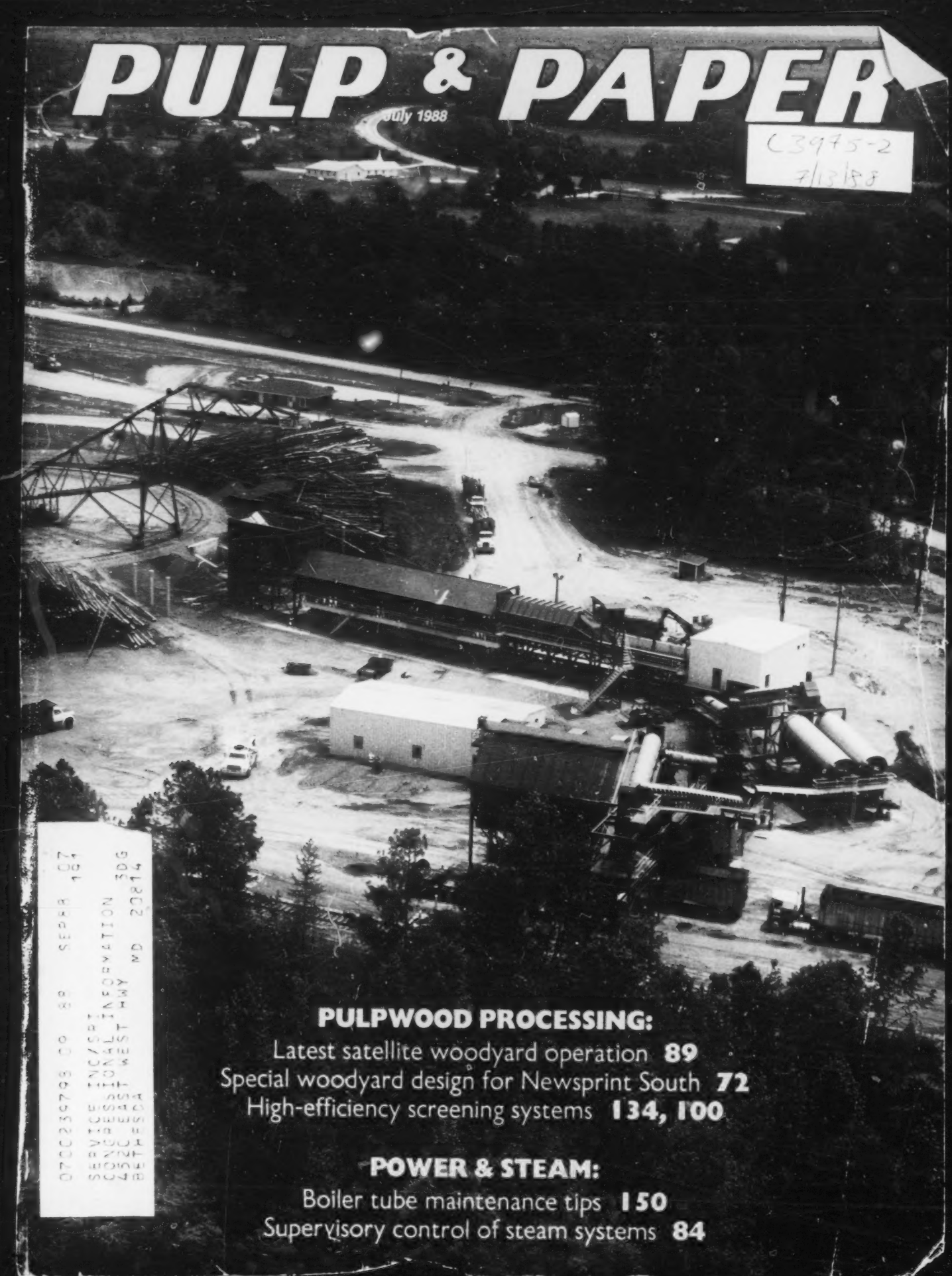

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PULPWOOD PROCESSING:

Latest satellite woodyard operation **89**

Special woodyard design for Newsprint South **72**

High-efficiency screening systems **134, 100**

POWER & STEAM:

Boiler tube maintenance tips **150**

Supervisory control of steam systems **84**

PULP&PAPER

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Office locations

AT = Atlanta: 2700 Cumberland Parkway N.W., Suite 530, Atlanta, Ga. 30339; (404) 432-3186
SF = San Francisco: 500 Howard St., San Francisco, Calif. 94105; (415) 397-1881; Telex 278273
NY = New York: 370 Lexington Ave., New York, N.Y. 10017; (212) 682-9294; Telex 220442
BR = Brussels: Chaussée de Charleroi 123a, Boite 5, B-1060, Brussels, Belgium; Telex 846-24672

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JULY

COLUMNS

From the Editors 7
by Debra A. Garcia
Recycled producers, your time has come

Chemical Report 39
by Michael Ducey
Chemical pulp bleaching never stronger

Quality Report 161
by Lars Ingman
Testing online vs offline—the ongoing quality decision

Career Development 165
by Roberta Bhasin
[illegible]ceeding at succession

[illegible]ment 232
b[illegible]ohn Worlidge
Tec[illegible]nology growth boosts business papers

DEPARTMENTS

Conference Calendar 41
News of People 167
Product Showcase 185
New Products 185
Product Review 197
Literature 201
Bookshelf 207
Supplier News 211

SERVICES

Reader Service Index 173
Reader Service Review 174
Reader Service Card 175
Professional Service Directory 214
Classified Advertising 216
Advertisers Index 230

NEWS

Month in Statistics 9
U.S. paper and paperboard production data for April

Market Report 11
More mills post pulp price increases
Uncoated free-sheet prices rose July 1
SC, coated prices rise to record levels

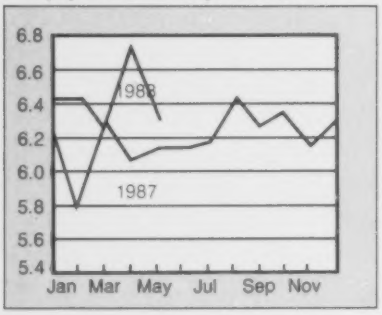
Grade Profile 13
Bleached paperboard: Solid market demand and strong price performance continue

NEWS SCAN

Boise to build free-sheet machine 21
Willamette breaks ground 21
Forms makers fined 23
Kuwait Investment eyes Con-Bath 23
Reed to sell paper businesses 23
Stone to buy grocery bag converter 23
Gaylord Container delays offering 25
L-P spins off Fibreboard Div. 25
Erving puts mill up for sale 25
Kruger to install machine 25
IP spends $50 million at Vicksburg 25
Jefferson Smurfit to run machine 27
Clinch River restarts mill 27
Nolichucky to restart mill 27
Capital spending remains high 27
Strikes end at Domtar, James River 29
UPIU locals protest IP 29
G-P settles at two mills 29
Northwest woodworkers strike 31
API releases dioxin studies 31
API forms Solid Waste Task Force 33
James River buys carton producer 33
Potlatch to install generator 33
Pope & Talbot to purchase plants 35
Scott to expand in cup market 35
Restraint on industry expansion? 35
Paper machinery exports jump 35

International News 37
EC's rights upheld in ruling
Groundwood mill studied in Norway
Spain to increase tissue capacity
Enso, Soviets may form joint venture
Grupo Durango plans expansion
Votorantin mill expansion in Brazil
Kraft paper mill to open in Indonesia

U.S. paper and board production



U.S. production of paper and paperboard totaled 6.3 million tons in April, an increase of 3.8% over April 1987, the American Paper Institute said. The seasonally adjusted production rate was 76.8 million tpy, up 5.0% from last year. The production rate was up 6.0% for the paper sector and 4.1% for paperboard. First-quarter trade statistics from the Census Bureau showed paper and paperboard exports up 18.9% from a year earlier, the result of a weak U.S. dollar. Imports climbed 4.0%. Pulp exports grew 15.3% in the first quarter, while imports declined 2.4%.

Among major grades, printing and writing papers continued to perform strongly, with production up 9.5% from April 1987. Coated papers was the most heated sector, with both production and new orders up about 14% from a year earlier. Reflecting continued strength in manufacturing, the Fibre Box Assn. reported a new record for April shipments, and containerboard production for domestic use jumped 5.5% from last year.

Canadian newsprint shipments dipped 3.5% in April to 789,000 metric tons, while woodpulp exports rose a sluggish 0.8%, to 628,000 tons. Operating rates stood at 99% for newsprint and 94% for pulp. ■

	Latest month (000 short tons)		% change from year ago	Annualized year-to-date (000 short tons)	% change from year ago
PAPER & PAPERBOARD PRODUCTION [1]					
Newsprint	April	497	7.6	5,954	6.2
Uncoated groundwood (s)	April	129	7.5	1,582	2.2
Coated paper (s)	April	609	11.1	7,476	13.9
Uncoated free sheet (s)	April	945	4.3	11,477	8.3
Other printing/writing	April	134	12.6	1,543	11.1
Total packaging and other paper (s)	April	438	3.1	5,302	0.9
Tissue	April	444	3.5	5,402	3.9
Total paper	**April**	**3,196**	**6.2**	**38,736**	**6.9**
Unbleached kraft paperboard	April	1,529	2.5	19,284	6.9
Semichemical medium	April	447	-3.5	5,645	0.5
Bleached paperboard	April	377	3.0	4,492	1.2
Recycled paperboard	April	754	1.8	8,962	6.5
Total paperboard	**April**	**3,107**	**1.5**	**38,383**	**5.0**
Total U.S. paper and paperboard output	**April**	**6,303**	**3.8**	**77,118**	**5.9**
PULP, WASTEPAPER & FIBER [2]					
Total U.S. woodpulp production	March	5,230	4.1	61,700	5.1
Market pulp production	March	730	6.4	8,558	9.8
Wastepaper consumption at paper/board mills	March	1,624	9.4	18,782	5.3
Pulpwood consumption (cords)	March	8,249	4.8	96,860	3.2
CONVERTED PRODUCTS STATISTICS [3]					
Corrugated box shipments (billion ft²)	April	26.053	1.6	102.868[6]	4.9
Containerboard inventories at U.S. box plants and mills	April 1	2,513	4.1		
INTERNATIONAL TRADE [2]					
U.S. paper imports (including products)	March	1,173	10.3	12,876	3.7
Imports of Canadian newsprint	March	785	7.8	8,677[6]	-0.3
U.S. paper exports (including products)	March	537	25.8	5,937	18.5
Exports of unbleached kraft linerboard	March	222	18.7	2,159	-4.3
Exports of woodpulp	March	491	4.2	5,302	15.3
Norscan pulp inventories[4]	April 30	821	-10.1		
Norscan pulp operating rates[4]	April	95%	102%	101%	100%
CANADIAN STATISTICS [5] *(reported in metric tons)*					
Total newsprint shipments	April	789	-3.5	3,167[6]	-0.1
Operating rates	April	99%	99%	100%	99%
Inventories held by U.S. consumers	April 30	1,525	12.1		
Other paper/board shipments	April	469	-12.3	2,209	4.6
Woodpulp shipments (export only)	April	628	0.8	2,632	0.6
Operating rates	April	94%	99%	97%	98%

1. American Paper Institute. 2. API, Bureau of Census, American Pulpwood Assn. 3. Fibre Box Assn., Paperboard Packaging Council. 4. North American/Scandinavian paper-grade market pulp. 5. Canadian Pulp & Paper Assn. 6. Not annualized. (s) = Shipments.

Bleached paperboard: Solid market demand and strong price performance continue

Grade structure: Solid bleached sulfate (SBS) is used primarily for folding carton and milk carton packaging and is produced from a furnish containing no less than 80% virgin bleached woodpulp. Other uses include cup and plate stock, round nested food containers, and linerboard. Calipers range from 10 to 28 points, in low-, medium-, and high-density, and basis weights vary from 120 to 300 lb/3,000 ft². Most of the SBS produced is either clay-coated or polyethylene-coated.

Markets: Market demand for bleached paperboard grades, as measured by their 1988 capacity share, is as follows: folding boxboard, 52.0%; milk carton and food service, 41.3%; linerboard, 2.9%; and other packaging, 3.8%.

Production/capacity: Production in 1987 was up 3.2% to 4.40 million tons, which was a record production level, according to the American Paper Institute. Operating rates improved to 94.2%, slightly higher than the 93.3% level recorded in 1986. Exports accounted for 564,000 tons, or 12.8% of production.

Among the major end uses, production of folding carton stock increased by 3.5%, milk carton stock increased 5.7%, food service products declined by 2.4%, and other packaging uses increased 1.7%.

Capacity increases have averaged 1.5% annually during the past ten years, highlighted by the startup of a new 175,000-tpy SBS paperboard machine at Westvaco Corp.'s Covington, Va., mill in 1986. No new machines are planned through the remainder of the 1980s, so capacity gains will come mainly from machine improvements and modernizations. These improvements are expected to increase the industry's capacity by 191,000 tons, or 1.3% annually, to a total of 4.87 million tons by 1990.

Outlook: Bleached paperboard consumption is expected to increase slightly this year, reflecting the steady demand for consumer packaging. Production is forecast to rise 1.9% to 4.49 million tons, and operating rates should remain at about 94.2%. Supply has been tight throughout the year because many companies have taken downtime to rebuild or modernize their paperboard machines. As much as 25,000 tons of production capacity was lost during the first half of 1988 as a result of downtime at Federal Paper Board Co., International Paper Co., Potlatch Corp., and Weyerhaeuser Co.

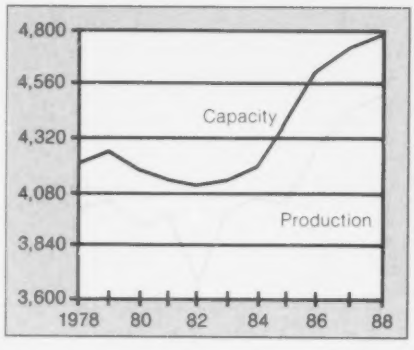
Folding carton demand should hold up through the end of the year as the possibility of a recession in 1988 diminishes. The proliferation of new consumer products, as well as the repackaging of older, established products, will fuel the demand for paperboard packaging. Milk carton demand has also been strong: producers continue to introduce new liquid packaging applications, and market share loss to plastics is easing. The most promising new market remains aseptic packaging, with International Paper Co. as a leading producer of this specialized type of board.

Disposable food service packaging will be in high demand from both fast-food restaurants and individual consumers this year. In recent years, the traditional disposable products of cups, plates, trays, and food containers have been joined by "microwavable" trays and containers in the convenience food market. Both Westvaco Corp. and James River Corp. have been major innovators of microwavable packaging.

Prices: Two price hikes were successfully implemented in April and October 1987, and producers raised prices again in April this year. The primary reason for this upward price trend has been the nearly two-year climb in pulp prices. Higher costs for polyethylene (PE) coatings and tight market conditions have also contributed to the price increases. Another increase later this year is expected if pulp prices continue escalating and market conditions remain firm.

Clay-coated 15-point folding carton boxboard (rolls), $/short ton, year-end: 1973, $300; 1974, $360; 1975, $360/$365; 1976, $385; 1977, $405; 1978, $425/$445; 1979, $490; 1980, $550; 1981, $625; 1982, $590/$625; 1983, $590/625; 1984, $590/$665; 1985, $500/$590; 1986, $570/$625; 1987, $625/$660; 1988 (June), $665/$700.

SUPPLY/DEMAND (000 tons)



FORECAST (000 tons)

	1986	1987	1988e
Production	4,271	4,405	4,489
Capacity	4,576	4,675	4,768
Utilization rate	93.3%	94.2%	94.2%
Imports	5	7	8
Exports	569	564	610
Apparent U.S. consumption	3,707	3,848	3,887
lb/capita	30.80	31.70	31.70
GNP ratio[1]	1.00	1.01	1.00

e = Estimate.
1. 1,000 tons/$billion real GNP.

TOP U.S. PRODUCERS (000 tpy)

	Annual capacity	Market share (%)
1. International Paper	848	17.8
2. Federal Paper[1]	631	13.2
3. Westvaco	600	12.6
4. Potlatch	537	11.3
5. Temple-Eastex	357	7.5
6. Champion	247	5.2
7. James River	235	4.9
8. Weyerhaeuser	210	4.4
9. Gulf States	200	4.2
10. Gilman Paper	185	3.9

Market share of top five companies:
62.4%

Market share of top ten companies:
85.0%

Total U.S. capacity (1988):
4.768 million short tons

1. Capacity figure published in 1987 Grade Profile included bleached bristols tonnage.

FREE-SHEET

Boise to build uncoated free-sheet machine

Boise Cascade Corp. last month said it will add a new uncoated free-sheet machine and rebuild its pulp mill at International Falls, Minn., for about $525 million. The over 300,000-tpy paper machine is expected to be online in late 1990. The new machine will produce "the full range of uncoated white papers," according to a company spokesman. This includes envelope paper, tablet, cut-size and reprographic, offset, and forms bond. The new machine will run at about 3,500 fpm and have a 345-in. trim. No supplier has been chosen.

Current printing/writing paper capacity at International Falls is 210,000 tpy on three medium-size machines. Boise also will modernize and almost double the capacity of the existing 456-tpd pulp mill to about 900 tpd (or 320,000 tpy). Additional pulp to support the expanded paper capacity will come from the company's nearby Fort Frances, Ont., pulp and paper mill. The company will build a state-of-the-art bleach plant based on high chlorine dioxide substitution, according to Andrew Drysdale, manager of public affairs.

In addition, the company also will expand the woodyard and wood handling areas, stock preparation, warehouse, and paper handling areas, he said. Site preparation is expected to begin immediately and construction should commence in early fall.

Analysts expected announcement of a new world-class machine. "It's not surprising," said John Maine, vice president-printing and writing papers at Resource Information Systems Inc. Maine said that demand for uncoated free-sheet paper has been rising and will continue to grow above capacity, although a recession in late 1989-90 may cause operating rates and prices to fall. But growth will hit around 5%/year after the economy turns upward again in 1991-92.

"Our feeling is that we need to do this in order to continue growing with our customers," Drysdale said. U.S. demand for white papers, almost 11 million tons in 1987, is growing rapidly—about 40% in the last eight years and possibly another 35% in the next eight years, he said. "And we felt that at this point we needed to expand our capacity to keep pace with that demand and allow us to continue to supply both the commodity and value-added needs of our customers," Drysdale said.

This project is somewhat larger and more expensive than Boise officials had indicated they would be interested in pursuing, but Drysdale said the company expects a good rate of return.

"The scale of these machines has gotten so big that you're not competitive in the commodity sectors of the free-sheet market unless you're operating a 240,000- to 250,000-ton unit," said Bruce Kirk of Goldman Sachs' Investment Research Group. The new Boise machine would appear to be slightly larger than the 290,000-tpy unit being installed by Georgia-Pacific Corp. at Port Hudson, La., for late-1988 startup—previously believed to be the largest ever installed in North America. ■

New U.S. and Canadian uncoated free-sheet capacity through 1992.

U.S.	Location	Capacity (000 short tpy)	Startup date
Georgia-Pacific Corp.	Port Hudson, La	230	1986
Hammermill Paper Co.	Selma, Ala.	185	1986
Boise Cascade Corp.	Wallula, Wash.	40	1987
Champion International	Pensacola, Fla.	260	1987
Georgia-Pacific Corp.	Port Hudson, La.	290	1988
International Paper Co.	various (net)	200	1988–90
Willamette Industries Inc.	Bennetsville, S.C.	200	1990
Champion International[1]	Quinnesec, Mich. (net)	58	1990–91
Great Northern Nekoosa Co.	Ashdown, Ark.	80	1990
Boise Cascade Corp.	International Falls, Minn.	300	1990
Union Camp Corp.[2]	Eastover, S.C.	240	1992
Weyerhaeuser Co.[2]	Columbus, Miss.	20	n.a.
Bowater Inc.	Calhoun, Tenn.	under study	n.a.
Canada		**(metric tons)**	
Domtar Inc.[3]	Windsor, Que.	160	1987
Weyerhaeuser Co.	Prince Albert, Sask.	217	1988
Domtar Inc.	Windsor, Que.	160	1989
Great Lakes Forest Products	Dryden, Ont.	175	1989

North American capacities, 1988
U.S.: 11.780 million short tpy
Canada: 915 metric tpy (estimated)

n.a. = Not available or not applicable.
1. Initially will produce uncoated free-sheet but designed for coated.
2. Machine announced or discussed in principle but plans not finalized.
3. During 1986–89 period, Domtar will also be shutting down 97 tpy of older capacity.

Willamette breaks ground for free-sheet machine

On June 24, Willamette Industries Inc. broke ground for its new greenfield mill near Bennettsville, S.C. The 710-tpd Valmet machine will manufacture alkaline-based uncoated free-sheet paper, a spokeswoman said. Startup is scheduled for September 1990.

The company already has received necessary water permits for the pulp and paper mill but is still awaiting air quality permits, according to the spokeswoman. Willamette is doing its own general contracting and engineering, which will help keep down expenses, although the company will not release cost projections.

(Several analysts have estimated the cost at around $325 million —which is approximately one-third less than the $485-million cost of another slightly smaller 600-tpd green-

Jefferson Smurfit considers restarting idle machine

Jefferson Smurfit Corp. may restart an idle machine to produce about 600 tpd of recycled medium and linerboard at Container Corp. of America's Fernandina Beach, Fla., mill.

"We're actively considering it, but no final decision has been made," according to Richard D. Quina, vice president and general manager-Containerboard Mill Div. He said that the project would involve the complete renovation of the idle linerboard machine, which was shut down in 1985, and the expansion of secondary fiber facilities.

The mill is completing a $30-million program to revamp woodyard equipment and retrofit new drives on two paper machines. This represents the final phase of a $250-million, five-year modernization project designed to increase production to 2,400 tpd by mid-1988.

Fernandina Beach last year managed to reduce unit energy costs 34%, while increasing average linerboard output from 1,764 tpd in 1986 to 2,137 tpd in 1987, according to the company's annual report, which says it is now one of the lowest-cost linerboard mills in the industry. ■

Clinch River restarts Harriman medium mill

Clinch River Corp. restarted the former Harriman Paperboard mill June 18, following a major reconstruction and modernization. The semichemical medium mill has been idle since November 1985 and was purchased by Clinch River in September 1987 for $2.15 million.

Clinch River was required to correct long-standing water quality problems at the Harriman, Tenn., mill before it was reopened. Consolidated Packaging Corp. had withdrawn its offer for the mill last year because compliance with effluent discharge limits was thought to be too costly. Clinch River has installed a new proprietary closed-loop, nondischarging treatment system developed with the assistance of Electric Controls Service Co. Inc. (EC&S) of Birmingham, Ala., in order to comply with water quality standards.

EC&S was also contracted to manage the rebuild of the paper mill, which included the power plant, evaporators, digesters, and installation of Valmet's Damatic and Sentry System for process automation and quality control. The upgrade of the paper machine included increasing the speed of the drives from 1,500 fpm to 1,800 fpm, the addition of six new 5-ft-dia dryers, and expansion of the dry-end broke pit to better accommodate shipping.

The mill will produce 300-tpd of 0.009 corrugating medium, using approximately 75% hardwood furnish and 25% old corrugated and kraft clippings. Marketing of the mill's product, called "Clinchcor," will be done by the Gibson Group Inc., a Cincinnati, Ohio-based paperboard brokerage firm and one of the investors in Clinch River. ■

Nolichucky to restart Hyde Park mill

Nolichucky Industries Corp. (NIC), which is based in Greenville, Tenn., has signed a lease arrangement with James River Corp. to operate the company's Hyde Park, Mass., mill, which has been shut down since December.

Under the proposed arrangement, NIC will lease the mill property and equipment to produce recycled corrugating medium and will have an option to purchase the mill at a future date. James River announced its intention to sell the Hyde Park mill in July 1987, saying it no longer fit its long-term strategic plans.

"We are very pleased with this agreement because we have placed a high priority on returning the mill to productivity in a way that would make a long-term contribution to the community," noted Phillip Henss, James River's vice president-corporate planning. The mill was producing about 55,000 tpy of printing/writing papers from purchased pulp at the time it was shut down. ■

CAPITAL SPENDING

No cutback planned from record spending plans

U.S. paper industry capital expenditures are heading through the roof this year, according to two new surveys of spending plans. According to the Commerce Dept.'s Bureau of Economic Analysis, U.S. pulp and paper companies plan to spend a record $11.29 billion in 1988 on capital projects, a 26.6% increase over last year.

The new survey, conducted from January through March, shows virtually no change from a survey of 1988 spending plans, conducted at the end of 1987. The new forecast for 1988 of

Capital spending plans of major North American pulp and paper companies.

U.S. companies	1988 (millions of $)	1987 (millions of $)
Boise Cascade Corp.	$400	$259
Champion International	550	365
Consolidated Paper Corp.	101	69
Georgia-Pacific Corp.	900	825
International Paper Co.	700-750	603
James River Corp.	600	504
Kimberly-Clark Corp.	400-500	247
Mead Corp.	400-435	175
Potlatch Corp.	175	155
Temple-Inland	200+	138
Union Camp Corp.	325	182
Westvaco Corp.	350-400	280
Weyerhaeuser Co.	750	605
Canadian companies		
Canfor Corp.	C$120+	C$54
MacMillan Bloedel Ltd.	350-400	257
Noranda Forest Inc.	550	326

Source: Recent company statements and annual reports

Chemical pulp bleaching never stronger

CONSUMPTION. With all the strong white paper segments of the market, it is no wonder that suppliers of chemicals to bleach chemical pulp have delivered record amounts over the past 18 months. In first-quarter 1988, GNP grew 3.9%, a pleasant surprise that also brought similar growth to bleached pulp end products. The chemical industry has had to play catch-up, successfully implementing price increases while balancing domestic and foreign marketing goals and corporate objectives. The future looks bright for mills and suppliers.

The trend of chlorine reduction continues, as the environmental winds remain strong. Although dioxin research has proved that pulp and paper industrials do not significantly contribute to the "toxification" of the environment, current and future regulatory statutes appear to be major driving forces in the flight to chlorine-reduction technology. The technologies themselves (dynamic mixers and pumps, oxygen, computer control, etc.) have performed admirably, and their use in the industry has gained considerably. Short-sequence bleaching by splitting, rebuilding, or constructing has given new meaning to three-stage bleaching. CDEOD seems to be making bright enough softwood pulp for captive use in uncoated free-sheet, bleached board, and tissue, while achieving salable market pulp properties for hardwood. Chlorine is still a useful and economical chemical in bleaching pulp, and its consumption has been on the rise since the paper production boom began in 1984. Producer restructuring resulted in a net supply loss of 15% during the last six years, and now that operating rates have reached 90% to 95%, the crunch is on. Coproduct caustic soda is in a more desperate situation, as demand across all industries soars and growth rates move higher than chlorine. Nearly 10% of the bleaching lines in North America now use high substitution of chlorine dioxide in chlorination stages, and the switch to short sequences helps that trend. This method is also being used because of water shortages, tough environmental laws, and viscosity concerns.

Dow Chemical has announced a new service called ChemAware. The basic program is free to all Dow customers and includes safety and handling videotapes, materials safety data sheets and literature, employee training sessions, and more.

Oxygen use in caustic extraction is reaching the saturation point. The greenfield projects and some split-line initiatives are including oxygen delignification processes into modernization plans. The lack of capital and operating experience are obstacles in faster implementation, with vast reduction in chemical and environmental costs the chief benefits.

PRICE. Because of the tight supply, prices have moved steadily upward since 1984. The sodium chlorate balance seems to be the most critical, with producers expanding but not as aggressively as future consumption needs indicate. QueNord, Alby-Olin, Canadian Oxy, and Albright & Wilson (formerly ERCO) have completed or are in the process of completing capacity expansions. QueNord will boost capacity at its Magog, Que., facility, and Kemanord has temporarily restarted graphite capacity at Columbus, Miss. Alby-Olin plans expansion for its plants in MacIntosh, Ala. and Valleyfield, Que. Canadian Oxy acquired BCM after expanding at Brandon, Man. Albright & Wilson modernized its facilities at Vancouver, B.C. Western Canadian bulk costs C$552/metric ton and solution is C$535/metric ton; eastern Canadian bulk and solution run C$50 to C$70 less. Southern U.S. deliveries list for US$385/ton for bulk crystal. Shipments with salt are generally higher. Prices are not as high as 1980 levels, but $400/ton is achievable soon.

Some chlorate producers maintain systems designers, and their workloads have increased significantly as capacity is challenged. After technology changes within the industry, manufacturers must choose product characteristics (crystal or solution, chrome content, salt, methanol, etc.) that will be profitable in the long term. Buyers interested in onsite chlorate generators must be aware of the unprofitable nature of the unit's production fluctuations. These concerns make it important to keep abreast of sodium chlorate supplier moves.

Chloralkali products have undergone changes, but they seem to have a bit more flexibility in influencing the balance. List prices for 50% caustic were bumped to US$225/ton in the East, US$200/ton in the South, and $255/ton in the West. Chlorine prices run about 25% lower. Caustic prices are strong for spot and contracts, but producers can really make money on the $400/ton export list price. Chloralkali capacity is available, but producers are watching economic and industry developments before selling it. The chemical producers are profitable in the late 1980s for the first time in a while, and they want to enjoy it.

As long as pulp and paper prices remain high, so too will chemical prices. This may help fuel inflation later, but for now it is welcome.

—*Michael Ducey*

Chemicals used in pulp bleaching enjoy growth in 1988.

Chemical	Pulp and paper consumption (lb)	% change 1987/1988	% change 1988/1989
Chlorine	22 billion	4.5%	4%
Caustic	21.8 billion	5.9%	6%
Chlorate	1.4 billion	5.5%	8%
Oxygen	250 million	7.5%	10%